

Smart Sensors

U N I V E R S I T Y O F U T A H

CENTER

This Center focuses on the creation of Smart Sensors, devices that combine sensor, signal processing, and computer solutions. These smart sensors probe the environment and then adapt their capabilities accordingly. This new generation of devices has applicability in medicine, agriculture, electronics manufacturing, wireless communication, transportation and radar. This is the Center's final year of support in the program.

TECHNOLOGY

The Center includes two core technology areas. The first core technology area is similar to a "mini-radar" system that measures length, distance, or impedance in a cable or circuit environment. These are cheap and simple. A successfully demonstrated application is for a "Smart Wire" in situ inspection system for aging aircraft wiring. Additional methods developed/developing in the Center include a tiny and inexpensive (\$2) timer circuit, capacitance sensors, an SWR meter, a direct sequence spread spectrum system, and correlation sensors based on communication theory.

The second core technology is the Imbedded Microstrip Antenna. The basic antenna design (a spiral or serpentine printed on a circuit board) can be adapted for either communication with buried objects (like cardiac pacemakers) or can be used for sensing (such as moisture of grain) and this year a combined design that can both sense and communicate was completed. The Center has developed a potential design for moisture measurement of soil for agriculture and water management, has identified Utah-based partners, and is actively pursuing a joint development project with a potential licensee.

ACCOMPLISHMENTS

A small Utah company, LiveWire Test Labs, Inc. has been established to act as the development partner for aircraft wiring test products and it has already received a number of Federal SBIR grants. Additional corporate partnerships are being developed with firms such as The Boeing Company, Texas Instruments, ATK (Brigham City) and Hamilton-Substrand (IL) as well as many others.

THINK TANK

What if there was...



**An easy, low cost
way to monitor
moisture content
throughout an
agricultural
field and adjust
irrigation
accordingly?**

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